

The OECD *Metropolitan eXplorer*

measuringurban.oecd.org

User guide
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The Metropolitan eXplorer offers an interactive visualisation of the 649 OECD metropolitan areas identified in 33 OECD countries¹ and the functional urban areas of Colombia.

Comparable values and rankings of population, GDP, employment, and many other indicators can be displayed through different visual techniques.

Explore the visualisation
measuringurban.oecd.org

Give your feedback
RegionStat@oecd.org

¹ The OECD-EU definition of functional urban areas (FUA) has not been applied to Israel, New Zealand and Turkey due to data availability.

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Introduction

The OECD, in cooperation with the EU, has developed a harmonised definition of urban areas which overcomes previous limitations linked to administrative definitions (OECD, 2012). According to this definition an urban area is a functional economic unit characterised by densely inhabited “city core” and “commuting zone” whose labour market is highly integrated with the core.

1) **City cores** are defined through gridded population data. The geographic building blocks to define functional urban areas are the municipalities (LAU2 in Eurostat terminology and the smaller administrative units for which national commuting data are available in non-European countries).

The population grid data for European countries comes from Global Human Settlement Population Grid², produced by the Joint Research Centre for the European Environmental Agency (EEA).

A “city core” consists of a high-density cluster of contiguous grid cells of 1 km² with a density of at least 1,500 inhabitants per km². A municipality is defined as being part of an urban core if at least 50% of the population of the municipality lives within the urban cluster. If more than 15% of employed persons living in one city core work in another city core, these two city cores are combined into a single destination (to take into account policentricity).

2) **Commuting zones** are defined as all municipalities with at least 15% of their employed residents working in a certain city core. Municipalities surrounded by a single functional urban area are included and non-contiguous municipalities are dropped.

This methodology makes it possible to compare functional urban areas of similar size across countries. A classification of functional urban areas into four types according to population size is proposed:

- Small urban areas, with a population below 100 000 people;
- Medium-sized urban areas, with a population between 100 000 and 250 000;
- Metropolitan areas, with a population between 250 000 and 1.5 million;
- Large metropolitan areas, with a population of 1.5 million or more.

The population for metropolitan areas were estimated using the Global Human Settlement (GHS) population grid at a 1km resolution and refer to the year 2015.

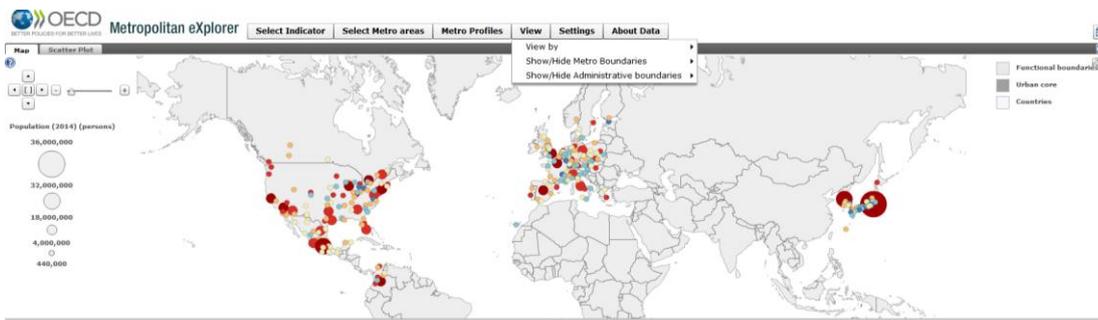
The **Metropolitan eXplorer** presents selected socio-economic data of metropolitan areas and large metropolitan areas. This Guide describes the different indicators, sources and visual techniques available in the Metropolitan eXplorer web tool. The underlying data comes from the OECD metropolitan available at: <http://dotstat.oecd.org/Index.aspx?DataSetCode=CITIES>

² https://ghsl.jrc.ec.europa.eu/ghs_pop.php

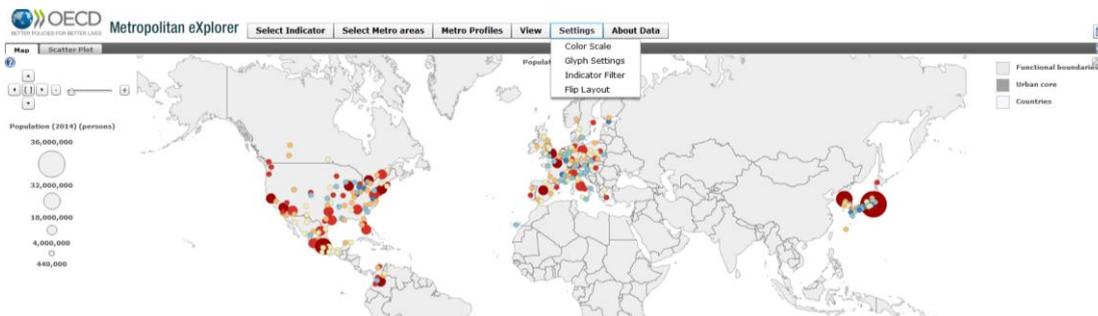
Different techniques to visualise the data

The Metropolitan eXplorer³ displays the indicators through three different linked dynamic views: a map, a histogram and a scatterplot. Once the indicator has been selected, it appears both on the map and on the histogram. The size of classes in a map can be adjusted by clicking on the values of the classes in the legend. One or more cities can be selected on the map (or on the histogram) by clicking on the city.

City cores and commuting zones are identified respectively on the map in dark/light grey. City cores and commuting zones can be highlighted by clicking on the metropolitan area border. Administrative boundaries of regions can be highlighted, appreciating the difference between the administrative and economic boundaries of the metropolitan areas. Select *View* and choose *Show/Hide administrative boundaries* and *Show/Hide Metro Boundaries*

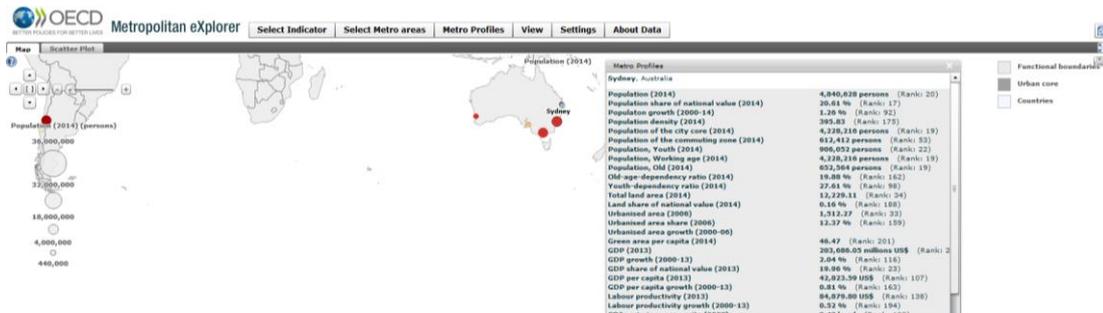


Size and colours can be customized through *Settings*. Colours can be associated either to the intensity of the indicator chosen, or to countries (Select *View*, *Color*).

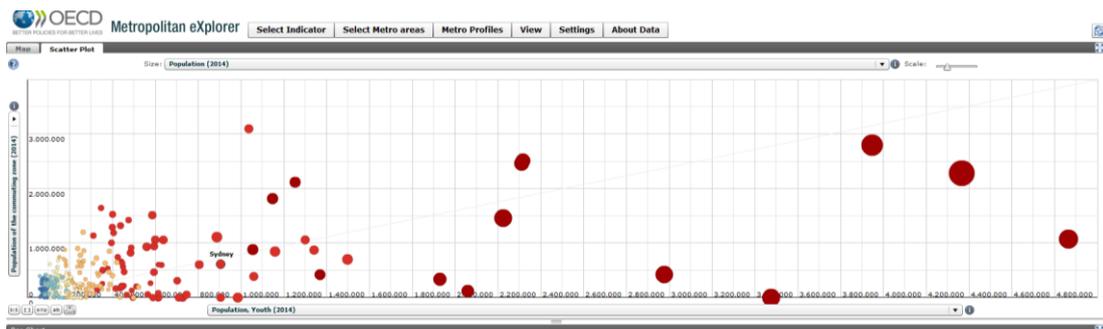


³ Disclaimer: maps are for illustrative purposes and are without prejudice to the status of or sovereignty over any territory covered by these maps.

Select the *Metro Profiles* to have a summary view of the performance of a single metropolitan area compared to the national value as well as to the other metropolitan areas.



The *scatterplot* allow the visualisation of three variables for each metropolitan area at the same time. You can choose the variables to be plotted on the X-axis, on the Y-axis and on the size of the bubbles.



Indicators

Population and population by age

Group	Indicator	Description	Year
Population	Population (persons)	Population by functional urban area. The population was calculated by aggregating demographic local administrative unit data sourced from the National Statistical Agencies. If the data is not available, total population was derived using GIS techniques from regional data (TL3 and TL2 level) or by using the GHS population grid.	2016, except for: Austria, Colombia, France, and Japan (2015).
	Population share of national value (%)	Population of the metropolitan area divided by the national population. The national population comes from official statistics from the OECD regional database. https://stats.oecd.org/Index.aspx?DataSetCode=REGION_DEMOGR	Same as <i>population</i> variable
	Population growth (%)	Average annual population growth over the period 2000-2016.	Year refers to 2000-16, except for: Austria, Colombia, France, Japan, Mexico, and Netherlands (2000-15); Australia, Germany, Great Britain, Italy, Lithuania, and Luxembourg (2001-16); Greece, Ireland (2002-16)
	Population density (persons per km²)	Ratio between total population and total land area of the functional urban area.	Same as <i>population</i> variable
Population by age	Population, youth	Population aged 0-14 years old by functional urban area. The population was calculated by aggregating demographic local administrative unit data sourced from the National Statistical Agencies. If the data is not available, total population was derived using GIS techniques from regional data (TL3 and TL2 level).	2016, except for Austria (2015), France (2014), Japan (2015), and Mexico (2010). No data available for Colombia.
	Population, working age	Population aged 15-64 years old by functional urban area. The population was calculated by aggregating demographic local administrative unit data sourced from the National Statistical Agencies. If the data is not available, total population was derived using GIS techniques from regional data (TL3 and TL2 level)	Same as <i>youth population</i> variable
	Population, old	Population aged above 64 years old by functional urban areas. The population was calculated by aggregating demographic local administrative unit data sourced from the National Statistical Agencies. If the data is not available, total population was derived using GIS techniques from regional data (TL3 and TL2 level)	Same as <i>youth population</i> variable
	Population, youth share of national value (2016)	Share of the metropolitan population (youth) over the national youth population.	Same as <i>youth population</i> variable
	Population, working age share of national value (2016)	Share of the metropolitan population (working age) over the national working age population.	Same as <i>youth population</i> variable
	Population, old share of national value (2016)	Share of the metropolitan population (old) over the national old age population.	Same as <i>youth population</i> variable
	Old-age-dependency ratio	Ratio between the elderly populations (65+ years) over the working age population (15-64 years old).	Same as <i>youth population</i> variable
	Youth-dependency ratio	Ratio between the youth population (0-14 years old) over the working age population (15-64 years old).	Same as <i>youth population</i> variable

Area

Group	Indicator	Description	Year
Area	<i>Total land area (km²)</i>	Total land area of the metropolitan area.	NA
	<i>Total land area core (km²)</i>	Total land area of the core of the metropolitan area.	NA
	<i>Total land area hinterland (km²)</i>	Total land area of the hinterland of the metropolitan area.	NA
	<i>Core area as percentage of total area of FUA (2016)</i>	Core land share over the total metropolitan land area.	NA
	<i>Urbanised area (km²)</i>	The urbanised area is defined as the land area covered by buildings or infrastructure for urban use. It includes, for example, residential and non-residential buildings, major roads, railways, and sport facilities. The source is the GHS settlement grid. https://ghsl.jrc.ec.europa.eu/ghs_smod.php	2014
	<i>Urbanised core (km²)</i>	Urbanised area of the core of the metropolitan area.	2014
	<i>Urbanised hinterland (km²)</i>	Urbanised area of the hinterland of the metropolitan area.	2014
	<i>Built up per capita (km²/person)</i>	The built-up per capita is defined as the urban area divided by total population. Note that the urban area in 2014 is divided by the population in 2015. The source of the built up area and the population are: https://ghsl.jrc.ec.europa.eu/ghs_smod.php https://ghsl.jrc.ec.europa.eu/ghs_pop.php	2014 for urban area by 2015 population

Gross Domestic Product and productivity

Group	Indicator	Description	Year
GDP	GDP (millions US\$)	Estimates of GDP of metropolitan areas, expressed in millions of US\$, constant prices and constant PPPs, OECD base year (2010). The estimates are derived from the values of TL3 regions. For Canada, Chile, Mexico, Australia, the estimates are derived from TL2 regions. Values for the United States are derived from the GDP of the Metropolitan Statistical Areas (MSAs).	2016, except for: Austria, Switzerland, Germany, Spain, Finland, France, Greece, Italy, Lithuania, Luxemburg, Latvia, Netherlands, Poland, Portugal, and Sweden (2015). No data available for Colombia and Iceland.
	GDP Annual growth (%)	Average annual GDP growth over the period 2001-16.	Refers to period 2001-16, except for Austria, Germany, Spain, Finland, France, Greece, Italy, Lithuania, Latvia, Netherlands, Poland, Portugal and Sweden (2001-15). 2001-14 for Ireland and Japan. 2008-15 for Switzerland.
	GDP share of national value (%)	Share of metropolitan area GDP over national GDP	Same as <i>GDP</i> variable
	GDP per capita (US\$)	GDP divided by total population, expressed in US\$, constant prices and constant PPPs, OECD base year (2010).	Same as <i>GDP</i> variable
	GDP per capita growth (US\$)	Average annual GDP growth over the period 2001-16.	Same as <i>GDP annual growth</i> variable
	Labour productivity	GDP per employee (place of work) expressed in US\$, constant prices and constant PPPs, OECD base year (2010)	Same as <i>GDP</i> variable
	Labour productivity growth	Average annual labour productivity growth over the period 2001-16.	

Income

Group	Indicator	Description	Year
Income	Household disposable income	Household disposable income	Data refer to 2016, except for Chile and Portugal (2015), and Germany (2013). No data for Switzerland, Colombia, Czech Republic, Denmark, Spain, Greece, Ireland, Iceland, Korea, Lithuania, Luxemburg, Latvia, Poland, Slovak Republic, and Slovenia.
	Gini	Gini measure of household disposable income inequality	Same as income

Labour Market

Group	Indicator	Description	Year
Labour market	Employment (level)	Estimated total employment in a metropolitan area. The estimates are derived from the TL3 regional values except for Poland, Mexico, Chile and Colombia (TL2). Data for the United States, Australia, and Canada come from the Metropolitan Statistical Areas.	2016
	Employment share of national value (%)	Share of metropolitan unemployment over the national value.	Same as <i>employment</i> variable
	Annual Employment growth (%)	Annual average employment growth over the period 2000-16.	2001-16, except for Switzerland (2010-2015)
	Unemployment (level)	Estimated total employment in a metropolitan area. The estimates are derived from the TL3 regional values except for Poland, Mexico, Chile and Colombia (TL2). Data for the United States, Australia, and Canada come from the Metropolitan Statistical Areas.	Same as <i>employment</i> variable
	Unemployment share of national value (%)	Share of metropolitan unemployment over the national value.	Same as <i>employment</i> variable
	Unemployment growth (%)	Unemployment growth over the period 2000-16.	Same as <i>annual employment growth</i> variable
	Labour force (level)	Estimated total labour force in a metropolitan area. The estimates are derived from the TL3 regional values except for Poland, Mexico, Chile and Colombia (TL2). Data for the United States, Australia, and Canada come from the Metropolitan Statistical Areas.	Same as <i>employment</i> variable
	Labour force share of national value (%)	Share of the metropolitan labour force over the national value.	Same as <i>employment</i> variable
	Labour force growth (%)	Annual average labour force growth over the period 2010-16.	Same as <i>annual employment growth</i> variable

Environment

Group	Indicator	Description	Year
Environment	Population exposure to PM2.5	Share of population exposed above 10 micrograms/m3 (2015)	2016
	Share of population exposed above 10 micrograms/m3 (2015)	Share of population exposed above 15 micrograms/m3 (2015)	2016
	Share of population exposed above 15 micrograms/m3 (2015)	Share of population exposed above 25 micrograms/m3 (2015)	2016
	Share of population exposed above 25 micrograms/m3 (2015)	Share of population exposed above 35 micrograms/m3 (2015)	2016
	Share of population exposed above 35 micrograms/m3 (2015)	Share of population exposed above 10 micrograms/m3 (2015)	2016
	Population exposure to PM2.5	Share of population exposed above 15 micrograms/m3 (2015)	2016

Sources, methodological notes, and data availability

The data used in the Metropolitan explorer comes from the OECD Metropolitan Database. For more information visit:

<http://dotstat.oecd.org/Index.aspx?DataSetCode=CITIES>

References

European Commission, Joint Research Centre (JRC); Columbia University, Center for International Earth Science Information Network - CIESIN (2015): GHS population grid, derived from GPW4, multitemporal (1990, 2000, 2015). European Commission, Joint Research Centre (JRC) [Dataset] PID: http://data.europa.eu/89h/jrc-ghsl-ghs_pop_gpw4_globe_r2015a

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